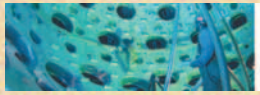
2005 LECTURE SERIES

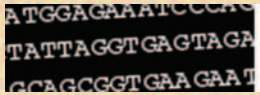
Presented By: Lawrence Livermore National Laboratory and Sigma Xi of Livermore

Science on Saturday is a five-week series of free lectures and demonstrations targeted at middle and high school students. Presentations are aligned with the California Science Standards. Topics are selected from the forefront of science and technology research in a variety of disciplines. The program runs from February 5th through March 5th:



February 5, 2005 — **Juggling the Power of Light:** ***How Lasers Work***

February 12, 2005 — **Inside Forensics:** ***Behind CSI***



February 19, 2005 — **Decode This:** ***Decoding Genomes***

February 26, 2005 — **Plasma Spectroscopy:** ***Fingerpainting of the Universe***

March 5, 2005 — **From the Big Bang to California:** ***Observations of the Universe***

All lectures are held at the Amador Theater located at 1155 Santa Rita Road, Pleasanton, beginning at 9:30 a.m. and ending at 11:15 a.m. Seating is on a first come first serve basis and there is no pre-registration. Directions and map are available on the SOS website: http://education.llnl.gov/sos.

Contact Information

Richard Farnsworth
Education Outreach Manager
Science and Technology Education Program
Phone: (925) 422-5059
Fax: (925) 422-5761
e-mail: farnsworth1@llnl.gov
http://education.llnl.gov/sos

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SCIENCE ON SATURDAY TOPICS AND PRESENTERS

JUGGLING THE POWER OF LIGHT: How Lasers Work

Ed Moses
LLNL Scientist
Dan Burns
Teacher, Los Gatos High School

The operation of the high power laser at the National Ignition Facility, the World's Biggest Laser, will be explained and demonstrated using small lasers and with on-stage demonstrations where the art of juggling is used as a metaphor to explain how a laser works. With the help of the audience we will cover such topics as energizing the laser, changing beam direction, synchronizing multiple beams, and changing the color of the laser light. We will also learn about the real difference between flash lights and laser beams.

INSIDE FORENSICS: Behind CSI

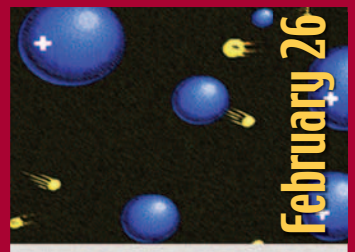
Alan Christian
LLNL Scientist
Kirk Brown
Teacher, Tracy High School

Ever wonder how crime scene investigators do their job? Where the tricks of their trade come from? Scientists at Lawrence Livermore National Laboratory work with crime labs to help develop cutting edge technologies to help analyze evidence, to track down and identify criminals. You'll learn how scientists work with law enforcement to develop new technologies that keep crime scene investigation on the cutting edge.

DECODE THIS: Decoding Gnomes

Elbert Branscomb
LLNL Scientist
Frankie Tate
Teacher, Granada High School

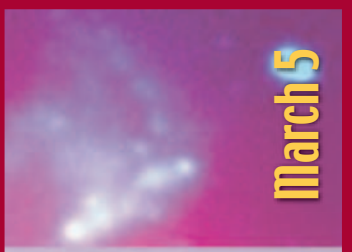
The clues are all there in the DNA 'sequence'. But how do we read them? What do they tell us? The technology of 'sequencing' genomes gives us quick access to the coded information life uses to perform all its wonders, and has opened the door into the secret heart of nature. But 'the code' doesn't come with instructions. Learning to decipher genomes is the great challenge of figuring out how life works: exposing the root causes and effective cures of disease, and revealing the evolutionary history of life on Earth. You will learn what a genome sequence is, how genomes can be deciphered, and what mysteries we solving.



PLASMA SPECTROSCOPY: Fingerprinting of the Universe

Don Correll
LLNL Scientist
Dan Burns
Teacher, Los Gatos High School

"Stars" come in two major categories: astrophysical objects like our sun and the stars, and fusion plasma experiments such LLNL's Spheromak and the proposed International Thermo-nuclear Experimental Reactor (ITER). Spectroscopy, the measurement and interpretation of the emission and absorption of radiant electromagnetic energy, is critical for understanding the physical behavior of both types of "stars." You will learn how scientists use spectroscopic measurements of light to study the stars and understand conduct cutting-edge fusion energy research. You will learn how to construct your own spectroscope.



FROM THE BIG BANG TO CALIFORNIA: Observations of the Universe

Wil van Breugel
LLNL Scientist
Tom Schfler
Teacher, Granada High School

You will learn about some of the most recent discoveries in astronomy. We will explore the origins of the Universe; the formation of galaxies, black holes, stars and planets; the importance of the interstellar medium; and recent NASA explorations in our own Solar system. Some of this research is occurring at the Lawrence Livermore National Laboratory where scientists are studying the important role that super-massive black holes play an in the formation of galaxies..